Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (previously presented) A method to aid in predicting susceptibility of a mammalian subject to development or growth of a steroid hormone responsive cancer in a mucosal epithelial tissue, the method comprising:

(a) quantitating and/or detecting at least one immunoglobulin inhibitor chosen from the group consisting of dimeric/polymeric IgA, polymeric IgM and IgG1 in at least one specimen of body fluid or secretion obtained from said subject, wherein said inhibition of steroid hormone responsive cell growth is capable of being reversed by said steroid hormone;

(b) correlating said quantitated and/or detected at least one immunoglobulin inhibitor with an absence or deficiency of at least one immunoglobulin inhibitor chosen from the group consisting of dimeric/polymeric IgA, polymeric IgM and IgG1 in at least one body fluid or secretion that contacts or is secreted by a mucosal epithelial tissue of said subject, wherein said absence or deficiency of said immunoglobulin inhibitor indicates that there is insufficient inhibition of steroid hormone responsive cell growth in said tissue, and

wherein said indication that there is insufficient inhibition of steroid hormone responsive cell growth in said tissue is predictive of increased susceptibility of said subject to development or growth of a steroid hormone responsive cancer in a mucosal epithelial tissue contacted by said at least one body fluid or secretion.

2. (Previously presented) The method of claim 1 wherein said at least one body fluid or secretion is chosen from the group consisting of colostrum, breast aspirates, saliva, tears, bronchial secretions, nasal mucosa, prostatic fluid, urine, semen or seminal fluid, vaginal secretions, ovarian aspirates, stool, and mucous secretions from the small intestine or stomach.

3. (Previously presented) The method of claim 1 wherein said quantitating and/or detecting comprises measuring the amount and/or activity of said immunoglobulin inhibitor in [[a]] said specimen of body fluid or secretion from said subject.

4. (Previously presented) The method of claim 1 wherein said quantitating and/or detecting comprises depleting steroid hormone from said specimen of body fluid or secretion to yield a steroid

hormone depleted specimen, and assaying said steroid hormone depleted specimen for steroid hormone reversible inhibition of steroid hormone responsive cancer cell proliferation.

5. (Previously presented) The method of claim 4 wherein said assaying comprises:

maintaining a population of steroid hormone-responsive cancer cells in a nutrient medium containing calcium ion and no free ferric ion, or less than a cell growth inhibiting amount of free ferric ion, said cells also being steroid hormone responsive for *in vivo* proliferation if implanted in a suitable host;

adding steroid hormone to said medium sufficient to stimulate cell growth under cell growth promoting culture conditions;

adding a steroid hormone free specimen of a body fluid or secretion to said medium, to yield a test mixture;

incubating said test mixture under cell growth promoting conditions;

after said incubating, measuring the cell population in said test mixture;

measuring the cell population in a control incubation mixture like said test mixture, except lacking said specimen;

optionally, testing said specimen for cytotoxic effects on said cells;

measuring the differences in cell number between said cell populations before and after said incubation, an increase in cell population doublings indicating the absence of inhibition of cell growth by said specimen in the presence of said steroid hormone, and a lack of increase in cell population doublings not attributable to cytotoxic effects of said specimen indicating inhibition of cell growth by said specimen in the presence of said steroid hormone, wherein cell growth in said test mixture and in said control mixture comprises more than one population doubling.

6. (Previously presented) The method of claim 1 wherein said inhibition of steroid hormone responsive cell growth is capable of being reversed by an amount of steroid hormone that is in the physiological concentration range for said steroid hormone in said mammal.

7. (Previously presented) An *in vitro* method of detecting loss of immunoglobulin regulation of steroid hormone responsive cell growth of a mucosal epithelial cell comprising:

(a) assaying for the presence of poly-Ig receptor on said mucosal epithelial cell;

(b) optionally, testing said poly-Ig receptor for ability to bind dimeric/polymeric IgA or polymeric IgM;

an absence or deficiency of said receptor, or the inability of said poly-Ig receptor to bind said dimeric/polymeric IgA or polymeric IgM, indicating loss of immunoglobulin regulation of growth of said cell, wherein immunoglobulin regulation comprises steroid hormone reversible inhibition of steroid hormone responsive mucosal epithelial cell growth by dimeric/polymeric IgA or polymeric IgM.

8. (Previously presented) A method of detecting a mediator of immunoglobulin inhibition of steroid hormone responsive cell growth wherein said inhibition can be reversed by said steroid hormone, the method comprising:

(a) detecting in a mucosal epithelial cell a receptor capable of binding the Fc domain of dimeric/polymeric IgA or polymeric IgM,

(b) optionally, testing said cell for *in vitro* activity of said receptor for mediating said steroid hormone reversible immunoglobulin inhibition of steroid hormone responsive cell growth, said cell being capable of more than one doubling *in vitro* wherein a detected receptor capable of binding the Fc domain of dimeric/polymeric IgA or polymeric IgM is indicative that said receptor is a mediator of immunoglobulin inhibition of steroid hormone responsive cell growth wherein said inhibition is capable of being reversed by said steroid hormone.

9 - 11. (Canceled)

12. (Previously presented) A method to aid in predicting susceptibility of a mammalian subject to development of breast cancer comprising:

(a) detecting the loss or impairment of negative regulation of breast tissue proliferation by the secretory immune system in said subject, said detecting comprising testing for loss or reduction of immunoglobulin inhibition of steroid hormone responsive cell growth in said tissue by dimeric/polymeric IgA, polymeric IgM or IgG1, a detected loss or impairment of said inhibition indicating a greater risk of development of breast cancer in said subject.

13. (Previously presented) A method to aid in predicting increased susceptibility of a mammalian subject to development or growth of a steroid hormone responsive cancer in a mucosal epithelial tissue, the method comprising:

(a) assaying a specimen of mucosal epithelial tissue obtained from said subject to detect the presence of a receptor capable of binding the Fc domains of dimeric/polymeric IgA or polymeric IgM;

(b) optionally, testing said specimen to determine whether said detected receptor is capable of mediating immunoglobulin inhibition of steroid hormone responsive cell growth *in vitro*, wherein said inhibition is capable of being reversed by said steroid hormone, and wherein said specimen comprises cells capable of proliferating to more than one population doubling *in vitro*;

an absence of said receptor or an absence of activity of said receptor for mediating said immunoglobulin inhibition being indicative that said tissue lacks sufficient functional mediators of immunoglobulin inhibition to deter development or growth of a steroid hormone responsive cancer in said mucosal epithelial tissue, and predicting increased susceptibility of said subject to development or growth of a steroid hormone responsive cancer in said mucosal epithelial tissue.

14. (Previously presented) A method to aid in detecting transformation of a mucosal epithelial cell from a steroid hormone responsive normal cell to a steroid hormone responsive cancerous condition, the method comprising:

(a) assaying a population of said mucosal epithelial cells for loss of Fcγ receptor;

(b) optionally, testing said cells for presence of a receptor capable of binding the Fc domain of IgG1, an absence of said Fcγ receptor or absence of a receptor capable of binding IgG1 indicating that said mucosal epithelial cells have transformed from steroid hormone responsive normal mucosal epithelial cells to said steroid hormone responsive cancerous condition.

15. (Previously presented) A method to aid in detecting progression of a steroid hormone responsive malignant mucosal epithelial cell to an autonomous cancer cell, the method comprising:

(a) optionally, testing a cancer cell for presence of poly-Ig receptor;

(b) assaying said cancer cell for ability to bind the Fc domain of dimeric/polymeric IgA or polymeric IgM;

wherein, an absence of said poly-Ig receptor or loss of said ability to bind the Fc domain of dimeric/polymeric IgA or polymeric IgM indicates that said cancer cell has progressed from a steroid hormone responsive malignant mucosal epithelial cell to an autonomous cancer cell.

16. (Canceled)

17. (Previously presented) A method to aid in detecting or diagnosing cancer in a mammalian subject comprising determining, in a population of cells taken from a mucosal epithelial tissue specimen obtained from said subject, wherein said population of cells is capable of more than one doubling *in vitro*, at least one of a first set of conditions selected from the following:

(a) absence or diminution of immunoglobulin inhibition of steroid hormone responsive cell growth, wherein said inhibition is capable of being reversed by said steroid hormone;

(b) absence or diminution of at least one immunoglobulin inhibitor of steroid hormone responsive cell growth from a body fluid or secretion secreted by or bathing said tissue, wherein inhibition by said inhibitor is capable of being reversed by said steroid hormone,

(c) absence or diminution of poly-Ig receptor in said cells,

(d) absence of poly-Ig receptor gene from said cells,

(e) allelic imbalance of said poly-Ig receptor gene in said cells,

(f) absence or diminution of Fcγ receptor in said cells,

(g) absence of Fcγ receptor gene from said cells,

(h) allelic imbalance of said Fcγ receptor gene in said cells,

and, optionally, detecting at least one of a second set of conditions selected from the following:

(i) absence or diminution of TGFβ regulation of cell growth,

(j) absence or diminution of TGFβ receptor in said cells,

(k) absence of TGFβ receptor gene from said cells,

(l) allelic imbalance of said TGFβ receptor gene in said cells,

, the presence of one or more of said first set of conditions indicating the presence of a cancerous or precancerous lesion in said subject , and detection of one or more of said second set of conditions indicating early onset of said cancerous or precancerous lesion in said patient.

18. (Currently amended) A method to aid in staging a cancer of a mucosal epithelial tissue comprising:

determining, in a specimen of neoplastic cells obtained from said cancer, whether said cells are stimulated by a steroid hormone to proliferate in an *in vitro* cell proliferation assay, wherein said cells are capable of more than one population doubling *in vitro*;

if it is determined that said cells are stimulated by said steroid hormone to proliferate, determining the amount of ~~immunoglobulin inhibitor~~ poly-IG receptor in a specimen of body fluid or secretion secreted by or bathing said mucosal epithelial tissue that is active for inhibiting steroid hormone responsive cell proliferation, wherein said inhibition is capable of being reversed by said steroid hormone, and determining at least one of the following conditions:

loss or diminution of TGFβ receptor in said cells,

loss of TGFβ receptor gene in said cells,

allelic imbalance of said TGFβ receptor gene in said cells,

loss or diminution of poly-Ig receptor in said cells,

loss of poly-Ig receptor gene in said cells,

allelic imbalance of said poly-Ig receptor gene in said cells,

loss or diminution of Fcγ receptor in said cells,

loss of Fcγ receptor gene in said cells,

allelic imbalance of said Fcγ receptor gene in said cells; wherein the presence of one or more said condition indicates a more advanced cancer stage.

19. (Previously presented) A method to aid in prognosis of a mammalian cancer patient comprising:

a) obtaining from said patient a specimen of body fluid, a secretion secreted by or bathing a mucosal epithelial tissue;

b) in said specimen of body fluid or secretion, determining a lack of a steroid hormone responsive cell growth inhibitory amount of at least one immunoglobulin inhibitor chosen from the group consisting of dimeric/polymeric IgA, polymeric IgM and IgG1 , wherein inhibition by said at least one immunoglobulin inhibitor is capable of being reversed by said steroid hormone, and

c) additionally determining at least one of the following conditions in a specimen of neoplastic cells obtained from a mucosal epithelial tissue of said patient:

c-1) loss or diminution of TGFβ receptor,

c-2) loss of TGFβ receptor gene,

c-3) allelic imbalance of said TGFβ receptor gene,

c-4) loss or diminution of poly-Ig receptor,

c-5) loss of poly-Ig receptor gene,

c-6) allelic imbalance of said poly-Ig receptor gene,

c-7) loss or diminution of Fcγ receptor,

c-8) loss of Fcγ receptor gene,

c-9) allelic imbalance of said Fcγ receptor gene; and

, wherein the lack of an inhibitory amount of said at least one immunoglobulin inhibitor is indicative of at least some degree of reduced prognosis of said patient, and the presence of one or more of said conditions from step (c) is further indicative of at least some degree of reduced prognosis.

20. (Previously presented) A method to aid in treating cancer of a mucosal/epithelial tissue comprising

detecting in a population of cancer cells obtained from said tissue the presence of an estrogen binding activity having a greater E_2 binding affinity than that of ERα or ERβ, the presence of said estrogen binding activity indicating that said cancer cell is estrogen dependent for growth, and indicating an anti-estrogen based therapy for treating said cancer, or the absence of said estrogen binding activity indicating that said cancer cell is not estrogen dependent for growth, and contra-indicating an anti-estrogen based therapy for treating said cancer of a mucosal/epithelial tissue.

21-65. (Canceled)

66. (Previously presented) The method of claim 5 wherein said increase or lack of increase in said cell population doublings is determined using the student's *t* test and wherein a value of $p < 0.05$ indicates a significant difference.

67. (Previously presented) The method of claim 8 comprising detecting poly-Ig receptor.

68. (Previously presented) A method of detecting a mediator of immunoglobulin inhibition of steroid hormone responsive cell growth wherein said inhibition can be reversed by said steroid hormone, the method comprising:

(a) detecting in a mucosal epithelial cell an Fc receptor capable of binding the Fc domain of IgG1;

(b) optionally, testing said cell *in vitro* for activity of said receptor for mediating said steroid hormone reversible immunoglobulin inhibition of steroid hormone responsive cell growth, said cell being capable of more than one doubling *in vitro*, wherein a detected receptor capable of binding the Fc domain of IgG1 is indicative that said receptor is a mediator of immunoglobulin inhibition of steroid hormone responsive cell growth wherein said inhibition is capable of being reversed by said steroid hormone.

69. (Previously presented) A method of detecting a defective mediator of immunoglobulin inhibition of steroid hormone responsive cell growth in cells from a specimen of mucosal epithelial tissue, the method comprising:

carrying out the method of claim 68 ; and

testing said cell *in vitro* for activity of said receptor for mediating steroid hormone reversible inhibition by IgG1 of steroid hormone responsive cell growth, said cell being capable of more than one doubling *in vitro*, wherein a detected receptor capable of binding the Fc domain of IgG1 and lacking or having diminished activity for mediating the inhibition of steroid hormone responsive cell growth, indicates that said receptor is a defective mediator of immunoglobulin inhibition of steroid hormone responsive cell growth.

70. (Canceled)

71. (Previously presented) An *in vitro* method of detecting loss of immunoglobulin regulation of steroid hormone responsive cell growth of a mucosal epithelial cell, wherein said cell is capable of more than one doubling *in vitro*, the method comprising:

(a) assaying for the presence of Fcγ receptor on a mucosal epithelial cell;

(b) optionally, testing said Fcγ receptor for ability to bind IgG1, an absence or deficiency of said receptor, or inability of said Fcγ receptor to bind IgG1, indicating loss of immunoglobulin

regulation of growth of said cell, wherein immunoglobulin regulation comprises steroid hormone reversible inhibition of steroid hormone responsive mucosal epithelial cell growth by IgG1.

72. (Canceled)

73. (Previously presented) The method of claim 1 further comprising detecting poly-Ig receptor in said mucosal epithelial cell, wherein absence or deficiency of poly-Ig receptor further indicates increased susceptibility of said subject to development or growth of said cancer.

74. (Previously presented) The method of claim 1 further comprising detecting Fcγ receptor in said mucosal epithelial cell, wherein absence or deficiency of Fcγ receptor further indicates increased susceptibility of said subject to development or growth of said cancer.

75. (Previously presented) The method of claim 74 further comprising assessing the activity of said Fcγ receptor for mediating inhibition by IgG1 of steroid hormone responsive cell growth in an *in vitro* cell proliferation assay, wherein said inhibition is capable of being reversed by said steroid hormone, and wherein an absence or deficiency of Fcγ receptor activity for mediating inhibition by IgG1 of steroid hormone responsive cell growth further indicates increased susceptibility of said subject to development or growth of said cancer.

76. (Previously presented) The method of claim 1 comprising identifying an age range in said mammalian subject of increased susceptibility to developing breast cancer after exposure to a carcinogen, wherein the age of said subject, if within said identified age range, further indicates increased susceptibility to development or growth of said cancer.

77. (Previously presented) The method of claim 20 wherein an indication that said cell is estrogen dependent for growth further indicates a therapy comprising increasing the number of B immunocytes in said mucosal/epithelial tissue producing IgA or IgM.

78. (Previously presented) The method of claim 20 wherein an indication that said cell is estrogen dependent for growth further indicates a therapy comprising administering an antagonist of said estrogen binding activity.

79. (Previously presented) The method of claim 78 wherein said antagonist comprises tamoxifen.

80. (Canceled)

81. (Previously presented) The method of claim 1 wherein said steroid hormone is an estrogen or an androgen.

82. (Previously presented) A method to aid in predicting susceptibility of a mammalian subject to development of breast cancer comprising:

(a) identifying an age range in said subject during which vulnerability to breast cancer is expected to be increased compared to that of another age range;

(b) determining the level of dimeric/polymeric IgA and/or polymeric IgM in breast tissue of mature adult females;

(c) at an age within said age range of expected increased vulnerability, determining the level of dimeric/polymeric IgA and/or polymeric IgM in breast tissue of said subject;

(d) optionally, increasing the amount of dimeric/polymeric IgA and/or polymeric IgM in the breast tissue of said subject;

(e) comparing the level of dimeric/polymeric IgA and/or polymeric IgM of said subject, from step (c) to the level of dimeric/polymeric IgA and/or polymeric IgM of said mature adult females, from step (b), wherein a lower level of dimeric/polymeric IgA and/or polymeric IgM in the breast tissue of said subject indicates greater susceptibility of said subject to development of breast cancer.

83. (Previously presented) The method of claim 82 wherein said lower level of dimeric/polymeric IgA and/or polymeric IgM in breast tissue of said subject indicates increased susceptibility of the breast tissue of said subject to mutagenesis.

84. (Previously presented) The method of claim 82 wherein step (d) comprises increasing the number of IgA- and/or IgM-producing immunocytes in the breast tissue of said subject during the age range identified in step (a).

85. (Previously presented) The method of claim 84 wherein increasing the number of said immunocytes in step (d) comprises orally immunizing said subject.

86. (Previously presented) The method of claim 17 wherein, in step (b), inhibition by said at least one immunoglobulin inhibitor is reversible by a physiologic concentration of said steroid hormone.

87. (Previously presented) The method of claim 20 wherein said greater E_2 binding affinity is $K_d \leq 1 \times 10^{-12}$ M.

88. (Previously presented) The method of claim 68 wherein said inhibition is reversible by a physiological concentration of said steroid hormone.

89. (Previously presented) The method of claim 1 wherein at least one specimen of body fluid or secretion obtained from said subject is serum or plasma.

90. (Withdrawn) A method of treating cancer of a mucosal epithelial tissue in an individual in need thereof comprising:

a) detecting the presence or absence of high-affinity estrogen binding activity having greater E_2 binding affinity than that of ERα or ERβ in said tissue, according to the method of claim 20; and

b) contacting said tissue with an inhibitor of said high-affinity estrogen binding activity.

91. (canceled)

92. (New) The method of claim 13 wherein step (a) comprises detecting the presence of poly-Ig receptor.

93. (New) The method of claim 20 further comprising:

testing said cells for the presence of poly-Ig receptor; and

optionally, testing said cells for ability to bind the Fc domain of dimeric/polymeric IgA or polymeric IgM, wherein the presence of said receptor, and/or the ability of said poly-Ig receptor to bind the Fc domain of dimeric/polymeric IgA or polymeric IgM further indicates a therapy for treating said cancer of a mucosal/epithelial tissue by immunoglobulin regulation of growth of said cells.

94. (New) The method of claim 1 wherein the quantitating and/or detecting in step (a) comprises:

(a') indirectly quantitating and/or detecting said at least one immunoglobulin inhibitor by quantitating and/or detecting J chain or secretory IgA, or the secretory component thereof, in said specimen, and correlating the quantitated and/or detected J chain or secretory IgA, or the secretory component thereof, with a quantity or presence of said at least one immunoglobulin inhibitor in said specimen, and wherein the correlating in step (b) comprises,

(b') correlating the quantity or presence of said at least one immunoglobulin inhibitor with an absence or deficiency of at least one immunoglobulin inhibitor chosen from the group consisting of dimeric/polymeric IgA, polymeric IgM and IgG1 in at least one body fluid or secretion that contacts or is secreted by a mucosal epithelial tissue of said subject, wherein said absence or deficiency of said immunoglobulin inhibitor indicates that there is insufficient inhibition of steroid hormone responsive cell growth in said tissue.